# BIOSORPTION OF Cd(II) ION FROM AQUEOUS SOLUTION BY USING ORANGE PEEL (*Citrus sinensis*) BIOMASS : OPTIMIZATION STUDY

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## TABLE OF CONTENTS

## ABSTRACT

### BIOSORPTION OF Cd (II) IONS FROM AQUEOUS SOLUTION USING ORANGE PEEL (*Citrus Sinensis*)

The elimination of metal ions from aqueous solutions by biosorption plays an important role in water pollution control. Toxic heavy metal contimination of industrial wastewater is an important enviromental problem. Biosorption can be used as a cost effective and efficient technique for the removal of toxic heavy metals from wastewater. This study investigated the uptake capacity of Cd (II) ions by processed orange peels, a pectin-rich byproduct of the fruit waste industry. Orange peels were identified as the most promising biosorbent due to high metal uptake in conjunction with physical stability. Therefore, the study on the potential of C*itrus sinensis* as biosorbent for removal of Cd (II) ions from aqueous solution was done on pH, contact time and biosorbent dose. from this study, The Cadmium adsorption was strictly pH dependent, and maximum uptakes of cadmium on biosorbents were observed at pH 6 with the highest percentage removal of 95% and uptake capacity of 0.475 mg/g. The result also showed that optimum contact time was determined at 210 minutes biosorption process with percentage removal of 95% with uptake capacity 0.475mg/g. In addition, it was found that 3.0g was the optimum biosorbent dose, which give highest percentage removal of 93% with uptake capacity 0.155mg/g. Due to their low cost, good uptake capacity, and stability, orange peels are a promising biosorbent material warranting further study.